Interactive GIS Tool For Quantifying Impacts On The Delta

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Public Comments

No public comments were received for this proposal.

Technical Synthesis Panel Review

Proposal Title

#0343: Interactive GIS Tool For Quantifying Impacts On The Delta

Final Panel Rating
inadequate

Technical Synthesis Panel (Primary) Review

TSP Primary Reviewer's Evaluation Summary And Rating:

This proposal addresses a timely and justified need: a strong need for these types of useful models for management and decision making. It lacks details on data layers to use, mapping scales, and the general design or approach. It lacks a scholarly review of the literature to support its approach. Having said this, Ducks Unlimited has experience in doing this type of decision support modeling but on a small scale. From a positive perspecitive, it does show phase feedbacks which will allow for modification of the models.

Additional Comments:

This proposal addresses a timely and justified need: a strong need for these types of useful models for management and decision making. It lacks details on data layers to use, mapping scales, and the general design or approach. It lacks a scholarly review of the literature to support its approach. Having said this, Ducks Unlimited has experience in doing this type of decision support modeling but on a small scale. From a positive perspecitive, it does show phase feedbacks which will allow for modification of the models.

Technical Synthesis Panel (Discussion) Review

TSP Observations, Findings And Recommendations:

The proposed project deals with an important topic and would be conducted by an experienced Ducks Unlimited team, and could produce a useful management tool. However, the panel agreed with the two technical reviewers that made a number of substantive comments, some of which were considered technical deficiencies. In particular, the lack of sufficient detail regarding the goals, design, and identified GIS layers raised serious concerns regarding potential impediments to the proposed work and the scientific value of its products.

Technical Review #1

proposal title: Interactive GIS Tool For Quantifying Impacts On The Delta

Review Form

Goals

Are the goals, objectives and hypotheses clearly stated and internally consistent? Is the idea timely and important?

Comments	**The goals and objectives of this proposal are clearly defined and consistent throughout the proposal. The goal of this study is to create a model that will allow users across a very broad region to analyze potential impacts of development on surrounding wetlands, waterways, wildlife habitat and agriculture in the Delta region. The concept of the proposal is very timely and important as more and more lands in California, especially in this area, are being developed at a high rate. The proposed development of this model is also timely since many county and city governments are aware of the need and beginning the processes for collaborative management with adjacent counties, cities, local land agencies, etc. Developing a tool that can be used at a regional scale will encourage and influence collaborative management within the Delta region and will be extremely important for determining how urban expansion in one area (e.g. county) may affect that area, as well as determine the potential effects on an adjacent area (e.g. county). Developing a model that has the ability to analyze different impact scenarios as a result of proposed urban expansion will allow users to develop and support a scenario that has the least impact on natural areas within this region.**
Rating	**very good**

Justification

Is the study justified relative to existing knowledge? Is a conceptual model clearly stated in the proposal and does it explain the underlying basis for the proposed work? Is the selection of research, pilot or demonstration project, or a full−scale implementation project justified?

Comments	**This project is justified relative to existing knowledge. Currently, there is a strong need for developing models that combine sociographic information along with ecological/geographic information to analyze and develop alternatives for managing population growth and urban development. There is also a strong need for collaborative management at regional scales. Again, developing a tool that can be used at a regional scale will encourage collaborative management within the Delta region and will be extremely important for determining the potential impacts of urban expansion in one area (e.g. county) and on adjacent areas (e.g adjacent counties). The conceptual model presented in the proposal does a good job explaining the underlying basis for the proposed work. The investigators (Ducks Unlimited) have already implemented a project that created a similar model for a smaller area. Thus, applying these similar methods along with others appropriate for this larger scale is the next step in developing a model that can effectively provide information useful for managing this entire region. However, the investigators did not discuss whether all of the county and city governments and local land agencies were contacted and were interested and willing to use the proposed baseline data and SDSS model.**
Rating	**very good**

Approach

Is the approach well designed and appropriate for meeting the objectives of the project? Is the approach feasible? Are results likely to add to the base of knowledge? Is the project likely to generate novel information, methodology, or approaches? Will the information ultimately be useful to decision makers?

Comments	**The approach for developing this model is well designed. As with all models, it is difficult to explain exactly what the model will incorporate until the surveys, interviews, and spatial data collection was been implemented. The first phase will collect all existing spatial data and implement surveys and interviews that will be used for developing the model based on the users needs. The second phase will be the model development, and lastly, the investigators will test the model and gather feedback and modify the model accordingly. The inclusion of a feedback and modification phase for the model is extremely important as modelers often need to make many changes, additions, etc. to a model before it finally becomes user−friendly and produces relevant information for the users. This approach meets the goals and objectives described in the project. The couple of weaknesses I found in the approach were that the investigators did not explain how the model would continue to be updated for future changes and additions that will likely arise as more and better spatial data becomes available and other considerations and user needs develop over time. Also, ESRI tends to continually change ArcInfo, ArcGIS, etc. How will the developed user−friendly SDSS interface remain compatible with continually changing ESRI products? Furthermore, if the baseline data and the model are distributed across the region to all stakeholders, how will updates, changes, additions, etc. be handled? These considerations are extremely important to consider since the model should remain useable over a long period of time.**

	I believe the project is likely to generate novel information, methodology, etc. As mentioned before, there is a strong need to develop models that can analyze impacts of urban expansion on natural areas. There is also a need for better collaboration in management among county and city governments, local land agencies, and private landholders at regional scales. The information/results that will be produced from this proposed model will be extremely useful for many decision-makers and aid them in making more informative decisions. It will give decision-makers in this region a baseline of data and the tools they need for developing better land management alternatives at a regional scale.
Rating	**very good**

Feasibility

Is the approach fully documented and technically feasible? What is the likelihood of success? Is the scale of the project consistent with the objectives and within the grasp of authors?

Comments	**The approach is fully documented and technically feasible. The use of ArcGIS, visual basic, and arc objects is appropriate for developing a user-friendly interface with ESRI products. The investigators state that they are basing the development of their model on a similar model developed by Ducks Unlimited. A figure depicting a proposed conceptual model would be beneficial in explaining the investigators approach and methods for model development, and also a description of how the model developed by Ducks Unlimited and UPlan works would have been helpful in understanding their basic modeling approach. The investigators state that the duration of the project is two years and they supply a timeline for completion of each phase. A two year timeline for collecting spatial data, implementing surveys and interviews, compiling and creating a comprehensive dataset, developing a SDSS user-friendly interface with ArcGIS, and gathering feedback and modifying this model seems**

	a bit short. If they have already collected a majority of the data and have an understanding of what parameters they need to include in the SDSS model based on the Ducks unlimited and Uplan models, it may be feasible in this timeline. Since the investigators are waiting until after data collection and survey implementation to design the SDSS, it is hard to determine from the proposal exactly how long the model development and modification phases will take.
Rating	**good**

Monitoring

If applicable, is monitoring appropriately designed (pre−post comparisons; treatment−control comparisons)? Are there plans to interpret monitoring data or otherwise develop information?

Comments	**The investigators description of the phase feedback and modification of the developed model is an extremely important element of this project. This phase of the project is appropriately designed and is necessary for the success of the project. As mentioned before, the investigators did not explain how the model would continue to be updated for future changes and additions that will likely arise as more and better spatial data becomes available or how other considerations and user needs would be addressed over time. Also, ESRI tends to continually change ArcInfo, ArcGIS, etc. How will the developed user−friendly SDSS interface remain compatible with continually changing ESRI products? Furthermore, if the baseline data and the model are distributed across the region to all stakeholders, how will updates, changes, additions, etc. be handled? These considerations are extremely important to consider since the model should remain useable over a long period of time.**
Rating	**good**

Products

Are products of value likely from the project? Are contributions to larger data management systems relevant and considered? Are interpretive (or interpretable) outcomes likely from the project?

Comments	**Products resulting from this project will be of high value. The collection and creation of a spatially-explict meta-database that will be used as baseline data for this entire region and will be distributed to all county and city governments, local land agencies, and any other stakeholders is very much needed. This information will be essential for managing at a regional scale. Developing a user-friendly model that will analyze impacts of urban expansion on the wetland/urban interface and will allow for decision-makers to create better alternatives for managing urban expansion across the entire Delta region will be an extremely important asset for all land managers in this area. Moreover, the approach and methodology of this project will be applicable for other regions.**
Rating	**very good**

Additional Comments

Comments

Capabilities

What is the track record of authors in terms of past performance? Is the project team qualified to efficiently and effectively implement the proposed project? Do they have available the infrastructure and other aspects of support necessary to accomplish the project?

Comments	**The resume and description of past work provided by the investigators leads me to believe that they are highly capable of effectively implementing this project. They all have strong backgrounds in modeling, sociographics, ecology and geography. Infrastructure and other support for implementing this project are**

	available at Ducks Unlimited and UC, Davis.
Rating	excellent

Budget

Is the budget reasonable and adequate for the work proposed?

Comments	The budget proposed for this work seems reasonable and adequate.
Rating	very good

Overall

Provide a brief explanation of your summary rating.

Comments	Overall, I felt this was a very good proposal. Currently, the awareness of the need to manage lands at the regional level is growing. The proposed collection and creation of a spatially-explict meta-database that will be used as baseline data for this entire region and will be distributed to all county and city governments, local land agencies, and any other stakeholders in the Delta region is very much needed. This information will be essential for managing collaboratively at a regional scale. Developing a user-friendly model that will analyze impacts of urban expansion on the wetland/urban interface and will allow for decision-makers to create and support better alternatives for managing urban expansion across the entire Delta region will be an extremely important asset for all land managers in this area. Moreover, the approach and methodology of this project will be applicable for other regions. It was not clear in the proposal if all county governments, local land agencies, and other stakeholders are interested in using the data and working collaboratively together. However, creation of the baseline spatial data and SDSS model may encourage

	and allow for collaborative management across the Delta region. **Also, the investigators need to consider how updates, changes, additions, user needs, in baseline data and in the SDSS model, as well as applicability with other models will occur in the future in order for the data and model to remain useable over a long period of time.**
Rating	**very good**

Technical Review #2

proposal title: Interactive GIS Tool For Quantifying Impacts On The Delta

Review Form

Goals

Are the goals, objectives and hypotheses clearly stated and internally consistent? Is the idea timely and important?

Comments	**The goals and objectives are stated clearly and the idea is timely and important.**
Rating	**very good**

Justification

Is the study justified relative to existing knowledge? Is a conceptual model clearly stated in the proposal and does it explain the underlying basis for the proposed work? Is the selection of research, pilot or demonstration project, or a full−scale implementation project justified?

Comments	**The proposed study is justified. The proposal is conceptually strong but significantly lacking in detail, compared to other proposals of this type that I've reviewed.**
Rating	**fair**

Approach

Is the approach well designed and appropriate for meeting the objectives of the project? Is the approach feasible? Are results likely to add to the base of knowledge? Is the project likely to generate novel information, methodology, or approaches? Will the information ultimately be useful to decision makers?

Comments	**The approach is not described in sufficient detail for me to assess fully its level of appropriateness for the project described. The authors make the following**

	statement related to "Implementability" of the proposed work: "Ducks Unlimited has considerable knowledge of the datasets that are held by various agencies and has worked cooperatively with many of the agencies on past projects." Given that statement, the authors should be able to describe in greater detail the specific GIS data layers they plan to obtain and how they will be integrated. **The mapping scale (i.e. level of mapping detail)or range of scales at which the model will be applicable is not specified. Also, it is not stated whether or not the spatially referenced information will meet national map accuracy standards, as specified by the Federal Geographic Data Committee, or whether accuracy assessments will have been completed and published (or are available) for all the coverages used.**
Rating	**poor**

Feasibility

Is the approach fully documented and technically feasible? What is the likelihood of success? Is the scale of the project consistent with the objectives and within the grasp of authors?

Comments	**The approach is not described in sufficient detail for me fully to assess its feasibility. The authors should be able to describe in greater detail the specific GIS data layers they need to obtain, why those coverages are needed, and how they will be integrated. The spatial scale (mapping scale) at which the decision tool (SDSS) will be applicable is not specified and it is not stated whether or not the spatially referenced information will meet national map accuracy standards as specified by the Federal Geographic Data Committee. The sources of information used to drive UPlan are not described and alternative models to UPlan are not described or evaluated.** **Some assessment of the accuracy of the various GIS coverages should be performed or be available if**

	already performed. Also, methods of validating the SDSS output should be described.
Rating	poor

Monitoring

If applicable, is monitoring appropriately designed (pre−post comparisons; treatment−control comparisons)? Are there plans to interpret monitoring data or otherwise develop information?

Comments	Monitoring does not appear to be a part of this proposal.
Rating	not applicable

Products

Are products of value likely from the project? Are contributions to larger data management systems relevant and considered? Are interpretive (or interpretable) outcomes likely from the project?

Comments	This is difficult to assess, given the generality of the proposal. If the project were sucessful, the GIS−based decision support tool should have general applicability. A method is not described for evaluating the effectiveness of the training workshops intended to introduce potential users to the SDSS.
Rating	poor

Additional Comments

Comments	The generality of this proposal and its complete lack of evidence of a scholarly review of the literature relevant to the concepts discussed makes it very difficult to evaluate. If it worked, a decision support tool of the kind described could be very valuable for future planning purposes, however.

Capabilities

What is the track record of authors in terms of past performance? Is the project team qualified to efficiently and effectively implement the proposed project? Do they have available the infrastructure and other aspects of support necessary to accomplish the project?

Comments	**The knowledge, skills, and attributes of the authors and their support personnel appear adequate to perform the tasks described.**
Rating	**good**

Budget

Is the budget reasonable and adequate for the work proposed?

Comments	**Yes. However, the rationale for requesting salary recovery for the university personnel involved is not clear. If the faculty have 12-month appointments, their salaries should be covered by their respective academic institutions. If the faculty have only nine-month appointments, the request for salary recovery is understandable and a rationale should be given. If the position of Director of Conservation Planning for the Western Regional Office of Ducks Unlimited is a salaried position, why is salary recovery requested?**
Rating	**fair**

Overall

Provide a brief explanation of your summary rating.

Comments	**I rank this proposal poor (possibly tending toward fair),largely because it is not sufficiently detailed to allow for a thoughtful external review. The proposal has conceptual**

	strength, but is significantly lacking in detail. I recommend that the authors be encouraged to submit a more detailed proposal at some future date.
Rating	**poor**

Technical Review #3

proposal title: Interactive GIS Tool For Quantifying Impacts On The Delta

Review Form

Goals

Are the goals, objectives and hypotheses clearly stated and internally consistent? Is the idea timely and important?

Comments	**The goals and objectives for this project are not well defined. There is no description of data layers that the authors are proposing to generate. It is not clear how this project will use " spatially explicit" tools and what decisions will be made and who will be using these data layers.The objectives for this project are described using very generic “motherhood” type of statements. It is not clear which data sets will be used, who are the users, who are the so called stakeholders, and what information is required to run a model. The authors write that they will acquire “all available data”. What are they trying to accomplish? There is nothing in their proposal that explains how all of this information will be managed. What will be guiding their selection of spatial analysis tools? There are no tasks in this proposed project designated to determination of spatial and temporal accuracy required for the planned data collection. There are no stated goals for assessing the quality of the data (layers of data?) and no listed objectives for evaluation of the model performance. There is no obvious connection between Phase I and Phase II of the proposed project. It is also not clear how the outcome of Phase II will be used, if it will be used in Phase III.**
Rating	**poor**

Justification

Is the study justified relative to existing knowledge? Is a conceptual model clearly stated in the proposal and does it explain the underlying basis for the proposed work? Is the selection of research, pilot or demonstration project, or a full−scale implementation project justified?

Comments	**In the proposal there is no reference to any kind of survey of potential users or to reports describing stakeholders (who ever they are) and decision makers(who are these people what type of decisions they will be making?) Without information about the potential users of the project's outcome it is not clear if this project will augment or enhance existing state of the knowledge and the use of GIS tools. The authors do not explain why the UPLAN will be used. The local planning agencies (whoever they are) should be involved before selection of the models or scenarios for model testing. The text of this proposal does not contain sufficient information that justifies the need for carrying out this project.**
Rating	**poor**

Approach

Is the approach well designed and appropriate for meeting the objectives of the project? Is the approach feasible? Are results likely to add to the base of knowledge? Is the project likely to generate novel information, methodology, or approaches? Will the information ultimately be useful to decision makers?

Comments	**The methodology proposed to carry out tasks of this project is described in very generic terms. Since the objectives for this project are not clearly defined it is not possible to determine if any new knowledge will be generated. The decision makers will be provided with a "GIS for dummies" tools. Considering the title of this proposal "Interactive GIS Tool for Quantifying Impacts on the Delta", the expectation that the users not suppose to have skills to understand analysis of the data could be very dangerous thing.**

Rating	**fair**

Feasibility

Is the approach fully documented and technically feasible? What is the likelihood of success? Is the scale of the project consistent with the objectives and within the grasp of authors?

Comments	**The feasibility of this project can not be properly assessed. The reasons for that have been stated in the sections above: Justification and Approach. It is feasible that the authors will generate something with questionable quality, because they do not impose quality control on the data layers to be acquired and compiled, do not discuss how they will assess the Uplan model performance, or describe what type of decision capabilities would their customized (sic) SDSS will have. The authors do have (although CVs attached to the proposal are very brief) training and expertise to carry out higher quality project.**
Rating	**poor**

Monitoring

If applicable, is monitoring appropriately designed (pre−post comparisons; treatment−control comparisons)? Are there plans to interpret monitoring data or otherwise develop information?

Comments	**As stated in previous sections there is very little information given in the proposal about quality control, model performance assessment, or discussion of analysis to be carried to assure that the accuracy of data layers and the model outputs. Since there is also no description of what SDSS is expected to do it is not clear how the decision making capabilities of this tool will be assessed.**
Rating	**poor**

Products

Are products of value likely from the project? Are contributions to larger data management systems relevant and considered? Are interpretive (or interpretable) outcomes likely from the project?

Comments	**The authors state that there will be CDs, images; probably maps generated in this project, as well as training workshops will be conducted. The usefulness of the products to be generated can not be properly assessed since the authors do not describe specific products: e.g., data layers), model output, or decision making tool (SDSS) capabilities.**
Rating	**fair**

Additional Comments

Comments

Capabilities

What is the track record of authors in terms of past performance? Is the project team qualified to efficiently and effectively implement the proposed project? Do they have available the infrastructure and other aspects of support necessary to accomplish the project?

Comments	**The CVs attached to this proposal do not contain enough information (for most of team members) to judge the track record of authors. I presume one could "google" their names and get information about their past and current performance. It looks like the authors did not want to spend time on attaching CVs to this proposal.**
Rating	**poor**

Budget

Is the budget reasonable and adequate for the work proposed?

Comments	**The budget is reasonable for a two year project (if the goals and objectives are clarified) but the authors do not consider project management, report generation, and quality assurance and control to be very important.**
Rating	**fair**

Overall

Provide a brief explanation of your summary rating.

Comments	**The proposal describes generic tasks and deliverables. The authors did not bother to describe who will be the users, out what type of impacts they will be evaluating, what data are required to assess urbanization impact, how the impacts will be quantified. It is not clear if any useful products will be generated by this project.**
Rating	**poor**